

AMENDMENTS TO THE CLAIMS

1-20. (Cancelled)

21. (New) A method for determining a region of visibility between at least a first reflector and a second reflector, the method comprising:

representing the first reflector, the second reflector and a third reflector in a system of coordinates (x, y, z);

carrying out an affine transformation of the system of coordinates (x, y, z);

determining a region of visibility of the second reflector in relation to the first reflector as a set of parameters of straight lines that link a generic point of the first reflector with a generic point of the second reflector;

determining a region of visibility of the second and third reflectors as seen from the first reflector;

tracing a single semi-straight line in the system of coordinates whose parameters are comprised in overlapping regions of visibility starting from the first reflector;

determining a succession order of intersections between the second and third reflectors based on the single semi-straight line; and

assigning a portion of the overlapping regions of visibility to the reflector having priority in the succession order,

wherein the regions of visibility represent a visibility diagram.

22. (New) The method according to claim 21, wherein said carrying out of the affine transformation comprises the execution of a rotatory-translation of the system of coordinates (x, y, z) so that the first reflector is placed on a plane $x = 0$.

23. (New) A method for determining a beam tree of beams of rays on a plurality of reflectors, comprising:

determining the regions of visibility according to the method of claim 22 so as to determine the visibility diagram;

positioning a source in a system of coordinates (x, y);

determining in the system of coordinates (x, y) areas of the reflectors illuminated by the source;

memorizing coordinates of the areas of the reflectors illuminated by the source;

representing a virtual source for each reflector illuminated;

applying the affine transformation of the system of coordinates (x, y) to the virtual source and to an illuminated region;

representing the transformed illuminated region by a segment of extremes (0, b_0) and (0, b_1);

representing the transformed virtual source in a space of parameters (a, b) by an equation $y = a x + b$, and the illuminated region by a disequation $b_0 \leq b \leq b_1$, wherein the equations $y = a x + b$ and $b_0 \leq b \leq b_1$ represents a segment of illumination in the space of the parameters (a, b); and

intersecting the segment of illumination with the visibility diagram so as to obtain sub-segments and thus sub-intervals of the interval $b_0 \leq b \leq b_1$, wherein the sub-intervals represent portions of the illuminated region that are to each illuminate a new reflector.

24. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

a program code for carrying out the method according to claim 22.

25. (New) The method according to claim 21, wherein said carrying out of the affine transformation comprises the execution of a scaling down of the system of coordinates (x, y, z) so that the first reflector assumes a preset dimension.

26. (New) A method for determining a beam tree of beams of rays on a plurality of reflectors, comprising:

determining the regions of visibility according to the method of claim 25 so as to determine the visibility diagram;

positioning a source in a system of coordinates (x, y);

determining in the system of coordinates (x, y) areas of the reflectors illuminated by the source;

memorizing coordinates of the areas of the reflectors illuminated by the source;
 representing a virtual source for each reflector illuminated;
 applying the affine transformation of the system of coordinates (x, y) to the virtual source
 and to an illuminated region;
 representing the transformed illuminated region by a segment of extremes (0, b₀) and (0, b₁);
 representing the transformed virtual source in a space of parameters (a, b) by an equation $y = a x + b$, and the illuminated region by a disequation $b_0 \leq b \leq b_1$, wherein the equations $y = a x + b$ and $b_0 \leq b \leq b_1$ represents a segment of illumination in the space of the parameters (a, b); and
 intersecting the segment of illumination with the visibility diagram so as to obtain sub-segments and thus sub-intervals of the interval $b_0 \leq b \leq b_1$, wherein the sub-intervals represent portions of the illuminated region that are to each illuminate a new reflector.

27. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

a program code for carrying out the method according to claim 25.

28. (New) The method according to claim 21, further comprising:

representing the first reflector and second reflector in a system of coordinates (x, y) by segments;

executing an affine transformation of the system of coordinates (x, y) capable of leading the first reflector to assume coordinates of extremes at points (0, m) and (0, n) with $m < n$;

representing the second reflector by a system of equations in which

$$x = e t + f$$

$$y = g t + h$$

with $0 \leq t \leq 1$;

representing a generic straight line by parameters (a, b) of an equation $y = a x + b$;

determining a region of visibility determining all the straight lines that pass through a generic point of the first reflector and a generic point of the second reflector combining the system equations so as to obtain a system in which

$$g t + h = a (e t + f) + b$$

with $0 \leq t \leq 1$ and with $m \leq b \leq n$.

29. (New) A method for determining a beam tree of beams of rays on a plurality of reflectors, comprising:

- determining the regions of visibility according to the method of claim 28 so as to determine the visibility diagram;
- positioning a source in the system of coordinates (x, y);
- determining in the system of coordinates (x, y) areas of the reflectors illuminated by the source;
- memorizing coordinates of the areas of the reflectors illuminated by the source;
- representing a virtual source for each reflector illuminated;
- applying the affine transformation of the system of coordinates (x, y) to the virtual source and to an illuminated region;
- representing the transformed illuminated region by a segment of extremes (0, b₀) and (0, b₁);
- representing the transformed virtual source in a space of parameters (a, b) by an equation $y = a x + b$, and the illuminated region by a disequation $b_0 \leq b \leq b_1$, wherein the equations $y = a x + b$ and $b_0 \leq b \leq b_1$ represents a segment of illumination in the space of the parameters (a, b); and
- intersecting the segment of illumination with the visibility diagram so as to obtain sub-segments and thus sub-intervals of the interval $b_0 \leq b \leq b_1$, wherein the sub-intervals represent portions of the illuminated region that are to each illuminate a new reflector.

30. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

- a program code for carrying out the method according to claim 28.

31. (New) The method according to claim 21, further comprising:

- determining a beam tree of beams of rays on the reflectors based on the determined regions of visibility.

32. (New) The method according to claim 31, wherein said determining of the beam tree comprises:

- positioning a source in a system of coordinates (x, y) ;
- determining in the system of coordinates (x, y) areas of the reflectors illuminated by the source;
- memorizing coordinates of the areas of the reflectors illuminated by the source;
- representing a virtual source for each reflector illuminated;
- applying the affine transformation of the system of coordinates (x, y) to the virtual source and to an illuminated region;
- representing the transformed illuminated region by a segment of extremes $(0, b_0)$ and $(0, b_1)$;
- representing the transformed virtual source in a space of parameters (a, b) by an equation $y = a x + b$, and the illuminated region by a disequation $b_0 \leq b \leq b_1$, wherein the equations $y = a x + b$ and $b_0 \leq b \leq b_1$ represents a segment of illumination in the space of the parameters (a, b) ; and
- intersecting the segment of illumination with the visibility diagram so as to obtain sub-segments and thus sub-intervals of the interval $b_0 \leq b \leq b_1$, wherein the sub-intervals represent portions of the illuminated region that are to each illuminate a new reflector.

33. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

- a program code for carrying out the method according to claim 31.

34. (New) A method for determining a beam tree of beams of rays on a plurality of reflectors, comprising:

- determining the regions of visibility according to the method of claim 21 so as to determine the visibility diagram;
- positioning a source in a system of coordinates (x, y) ;
- determining in the system of coordinates (x, y) areas of the reflectors illuminated by the source;
- memorizing coordinates of the areas of the reflectors illuminated by the source;

representing a virtual source for each reflector illuminated;
 applying the affine transformation of the system of coordinates (x, y) to the virtual source
 and to an illuminated region;
 representing the transformed illuminated region by a segment of extremes $(0, b_0)$ and $(0, b_1)$;
 representing the transformed virtual source in a space of parameters (a, b) by an equation $y = a x + b$, and the illuminated region by a disequation $b_0 \leq b \leq b_1$, wherein the equations $y = a x + b$ and $b_0 \leq b \leq b_1$ represents a segment of illumination in the space of the parameters (a, b) ; and
 intersecting the segment of illumination with the visibility diagram so as to obtain sub-segments and thus sub-intervals of the interval $b_0 \leq b \leq b_1$, wherein the sub-intervals represent portions of the illuminated region that are to each illuminate a new reflector.

35. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

a program code for carrying out the method according to claim 34.

36. (New) A program to be executed by a computer, the program being recorded on a computer-readable medium, the program comprising:

a program code for carrying out the method according to claim 21.
 computer.